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March 20, 1996

Project Number 6884

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Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order No. 0254

Subject: Vibracore Sample Collections, Former Derecktor Shipyard, NETC Newport

Dear Mr. Krivinkas:

Brown and Root Environmental presented a summary of vibracore sample collections on December 8, 1995, which were performed at the site referenced above in November 1995. This coring effort was performed to support the on-going studies off-shore of the former Derecktor Shipyard. The attached Technical Memorandum describes follow-up sample collection from these cores performed on March 15, 1996.

The scope of work allowed for the analysis of up to four samples from these cores. The selection of chemistry samples was made after analysis of surface and intermediate depth samples from the site in January and February 1996. The remainder of the cores were to be analyzed for grain size distribution to assist characterization of the sediments in the study area.

A determination was made as to the four analytical samples in January, 1996. After analysis of these samples, vertical extent of contamination was defined in all the stations selected for the ecological risk assessment, and no other samples were recommended to the Navy.

On March 15, 1996, the remaining cores were un-sealed for the purposes of logging the sediments, and extracting representative samples for grain size analysis. Vibracore logs, which were issued in a draft version in December 1995, were finalized by geologists identifying the sediment types present in each core. These final vibracore logs are attached to this letter.

At all locations, the penetration of the core was a greater distance than the length of the recovered material. As described previously, this can be due to two factors: compaction or blockage. Compaction occurs from the resistance of the core barrel against the subsurface materials. Sample compaction occurs during the use of any core device used in unconsolidated materials. Blockage occurs when a large piece of material is caught by the cutting head of the core barrel and driven ahead of the barrel by the force of the drilling operation, without causing a "refusal". Blockage in sediment material is usually caused by surface debris, leaving almost nothing in the core barrel. After inspection of the cores, it is clear that the decreased recovery in the core tubes is due to compaction, not blockage.



Mr. Robert Krivinskas
Northern Division,
Naval Facilities Engineering Command
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Due to the compaction of the cores, the actual depth of each contact in the sediment column described in the vibracore logs is not known. Each unit compacts at a different rate, and the entire recovery of the core can only be attributed to the entire penetration into the sediment. This can be compensated for by shortening the core penetration, thus increasing the representativeness of the sample. Penetration and recovery in feet is presented on the attached core logs.

Of particular note was an oily sheen and odor from sediments at approximately 2-4 feet below the top of cores collected from stations V-10 and V-13 (refer to Figure 1, attached). These areas were identified as depositional areas by the geophysical survey performed in September and October 1995. Compaction of the cores indicates that this material is present in the sediment anywhere between two and six feet below the top of sediment. While the contaminant presence is important, it is understood to be below the depth interval of bioturbation targeted for the ecological risk assessment.

No obvious layers or deposits of sandblast grit were identified by visual observation in any of the cores inspected. However, black sandy silt was noted in the upper two feet at core locations V-4 (ERA station 28), V-6 (ERA station 29), V-7 (ERA station 40), and V-9 (ERA station 27). This material could contain some used sandblast grit, but its presence was not obvious to the geologists logging the cores. Since chemistry samples were already collected from these stations in conjunction with the ERA, additional analysis was not deemed necessary.

Most of the cores consisted of soft black organic silt overlying dense grey silt. Shell fragments were abundant in most of the cores collected. Traces of wood fragments or peat were detected in several cores.

After the grain size analysis is completed, B&R will provide a technical memorandum describing the performance of this work and the findings. The scope of the ecological risk assessment does not call for inclusion of this information, and as such, we did not intend to include it with our other deliverables. It would be more pertinent to support a site-wide remedial investigation or a precursor to a feasibility study for the marine sediments.

If you have any questions regarding this material, please do not hesitate to contact me.

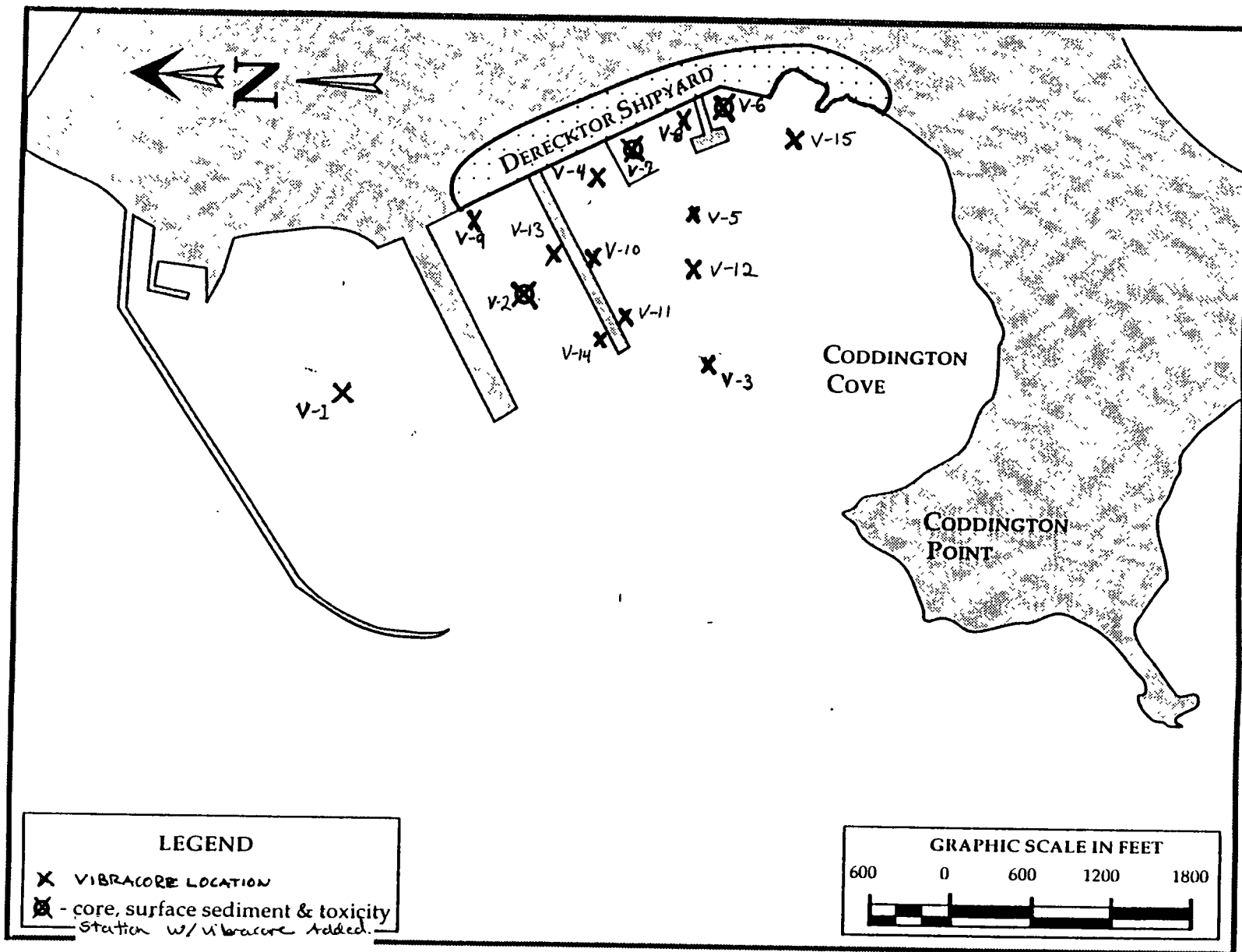
Very truly yours,

Stephen S. Parker
Project Manager

SSP/gmd

Enclosures

c: B. Wheeler, NETC Newport (w/enc.)
T. Bober, Northdiv (w/enc.)
J. Trepanowski/M. Turco, B&R Environmental (w/o enc.)
File 6884-4.7 (w/enc.), 6884-3.2 (w/o enc.)



VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-1
 DATE START: 11/20/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 37 ft.
 DATE COMPLETED: 11/20/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-9 ft.

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	S.S.C.S.	GEO-LOGICAL CONTACT
	0					
	0.5			silty CLAY, mostly clay w/trace - few silt black, shell fragments		
	1			silty SAND, mostly F SAND, trace med. sand, poorly graded, lots of shell fragments, trace - few silt, light - med. gray		
	1.6					
	2			silty SAND, similar to above (0.5-1.6'), darker gray		
	2.5					
	3			PEAT, yellowish orange to light brown trace F-med sand		
	3.45					
	4			PEAT, similar to above (2.5-3.45') dark brown		
	4.6					
	5.0			PEAT, similar to above (3.45-4.6')		
	5.2					
	6		End of core @ 5.2'	silty SAND, mostly F-med sand, trace CS sand, little silt, dk gray		
	7					
	8					
	9					
	10					

LEGEND

Penetration = 9 ft

Recovery = 5.9 ft

NOTES:

Location: between Pier 2 and North Breakwall

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-2
 DATE START: 11/21/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 37 ft.
 DATE COMPLETED: 11/21/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-8.5 ft.

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.	GEO-LOGICAL CONTACT
	0					
	1	GRAINSIZE		clayey sandy SILT, mostly silt, few f. sand, few-tr. clay, light gray, few shells		
	1.5					
	2			Silty SAND, mostly f. sand, poorly graded, little silt, some shells, gray		
	2.6					
	3	GRAINSIZE		clayey SILT, mostly silt, few clay, no sand, isolated weathered shells, gray		
	4					
	4.5					
	5			Organic silt, brown, small lenses of clayey silt		
	5.25	GRAINSIZE				
	5.70		End of Core @ 5.70'	Silty SAND, mostly f. SAND, tr. med. sand, few silt, gray		
	6					
	7					
	8					
	9					
	10					

LEGEND

Penetration = 8.5 ft

Recovery = 61 ft

NOTES. air pocket in bottom of Core

Location: between Piers 1 and 2.

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derektor Ship DRILLED BY: TG&B CORE NO: V-3
 DATE START: 11/20/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 38 (ft)
 DATE COMPLETED: 11/20/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-10 (ft)

ELEV IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	USCS	GEO- LOGICAL CONTACT
	0	GRAINSIZE		clayey SILT, mostly silt, few clay, black		
	1					
	1.3			SILT, trace clay, few shell fragments, Olive gray		
	2					
	3	GRAINSIZE				
	4					
	5					
	6					
	6.1		End of Core @ 6.1			
	7					
	8					
	9					
	10					

LEGEND:

Penetration = 10 ftRecovery = 6.3 ft

3rd Attempt

NOTES. Shear on surface of water after core retrieval

Location: West of Pier 1, Outermost sample point, sample sta 34

VIBRACORE LOG

HNUS CORPORATION

PROJECT: 6884 LOCATION: Der ckt & Shpnd DRILLED BY: TG EB CORE NO.: V4
 DATE STARTED: 11/21/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH 39
 DATE COMPLETED: 11/21/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-7 (ft)

ELEV. feet	DEPTH feet	SAMPLE				REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0							Silty SAND, black fine SAND, some silt, poss SAND blast grit.
	0.9							SAND, black fine SAND, trace med SAND, trace shell fragments, some layering of med./fine SAND
	1.9							Silty SAND, black silty f. SAND
	3							
	4							gray silt.
	5							
	6							
	7							

Penetration = 17 ft
 Recovery = 5.73 ft

3 Attempts @
 This Location

NOTES: Contact locations are approximate based on visual observations.
 "hard Refusal"

LOCATION: Between "Dead Zone" and Pier 1.
 Sample Sta. 28

DATE: 11/21/95 PROJECT NO.: 6884
 PAGE: 1 OF 1 CORE NO.: V4

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-5
 DATE START: 11/21/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 26 (ft)
 DATE COMPLETED: 11/21/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-11 (ft)

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.	GEO-LOGICAL CONTACT
	0					
	0.6					
	0.95					
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					

GRAINSIZE

Sheen + pet odor in core

clayey SILT, mostly silt, tr. - few clay, dark gray to black
 Sheen + pet. odor

Sandy SILT, mostly silt, few - little f sand, trace med. sand, gray to black

sandy SILT, mostly silt, tr. - few fine sand, gray

small lenses of fine sand

GRAINSIZE

4.5
 4.9 } wood fragments

5.4
 7.0 } shells present.

End of Core @ 7.0

LEGEND:

Penetration = 11 ft

Recovery = 7.1 ft

NOTES:

Location: Off-shore of "Dead Zone"
 Sample STA 30

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derektor Ship. DRILLED BY: TG&B CORE NO: V-6
 DATE START: 11/21/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 14 (ft)
 DATE COMPLETED: 11/21/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-3 (ft)

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.	GEO- LOGICAL CONTACT
	0	GRAINSIZE		clayey sandy silt, mostly silt, few trace f sand w/shell fragments, few clay black		
	0.5			silty SAND, mostly F SAND, little silt, black, shell fragments		
	1 1.1			silty SAND, mostly F SAND, poorly graded, tr. CS. SAND, few silt, dark gray		
	2 2.1		End of core @ 2.1			
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					

LEGEND:

Penetration = 3 ftRecovery = 2.5 ft

NOTES:

3 attempts made @ this location

Location: off-shore of Building 234
 Sample sta 29

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-7
 DATE START: 11/22/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 16 ft
 DATE COMPLETED: 11/22/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-8 ft

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.	GEO-LOGICAL CONTACT
	0.15	GRAIN SIZE		clayey SILT, mostly silt, few clay, black		
1	1.3			silty SAND, mostly f. sand, trace med. sand, few silt, black - dark gray		
2				SAND, mostly f sand, trace med. sand, poorly graded, trace silt, trace shell fragments, light gray		
3	3.8	GRAIN SIZE				
4			Core End @ 3.8			
5						
6						
7						
8						
9						
10						

LEGEND:

Penetration = 8 ftRecovery = 4.2 ft

NOTES:

Location: N End of "Dead Zone"
 Sample sta. 40

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-8
 DATE START: 11/22/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 16 ft
 DATE COMPLETED: 11/22/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-6 (ft)

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.S.	GEO- LOGICAL CONTACT
	0					
	0.2			silt, mostly silt, fr. s. sand, trace clay, black, trace shell fragments		
	1.2			silty SAND, mostly f. sand, poorly graded, trace- few silt, trace med. sand, trace shell fragments, gray - tan		
	1.3			similar to above (0.2-1.2'), black		
	2			Similar to (0.2 to 1.2') above, gray color		
	3					
	3.5					
	4		End of Core @ 3.5			
	5					
	6					
	7					
	8					
	9					
	10					

LEGEND

Penetration = 6 ftRecovery = 4.05 ft

NOTES. five sand in core catcher
 3 attempts @ this location

Location: S. End of "Dead Zone"
 Sample Sta 41

VIBRACORE LOG

HNUS CORPORATION

PROJECT: 6884 LOCATION: Der eltor Shyrd DRILLED BY: TG EB CORE NO.: U9
DATE STARTED: 11/21/95 INCLINATION: Vert. LOGGED BY: J Holder WATER DEPTH 36'
DATE COMPLETED: 11/21/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-4 (ft)

ELEV. feet	DEPTH feet	SAMPLE					REMARKS ON ADVANCE OF BORING	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0								<p>silty SAND, mostly fine SAND, some silt, Block, poss. SAND blast grit.</p> <p>some gray silt in bottom 0.3'</p>

Penetration = $\frac{4}{1.45}$ ft
Recovery = $\frac{4}{1.45}$ ft

3rd Attempt

NOTES: Contact locations are approximate based on Visual observations.

lost bottom ($\sim 0.5'$) during recovery

LOCATION: Sample Sta. 27, between Piers 1+2

DATE: 4/21/95 PROJECT NO.: 6884
PAGE: 1 OF 1 CARE NO.: U9

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-10
 DATE START: 11/20/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 32 ft
 DATE COMPLETED: 11/20/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-10 ft

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	USCS	GEO- LOGICAL CONTACT
	0					
	1			Silt, black, tr. f. sand, few - little shell fragments, smalls (dead shells)		
	2					
	3					
	3.3					
	3.8			SILT, mostly silt, tr. f. sand, few shell fragments, olive gray		
	4.0		PET. 000R,	SILT, black, Heavy Pet Sheen		
				SILT, mostly silt, tr. f. sandy, few shell fragments, olive gray.		
	5		End of Core @ 4.95'			
	6					
	7					
	8					
	9					
	10					

LEGEND:

Penetration = 10 ftRecovery = 535 ft

NOTES.

Pet sheen observed from 3.8-4.0'

Location: Pier 1, South Center

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derektor Ship. DRILLED BY: TG&B CORE NO: V-11
 DATE START: 11/20/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 33 ft.
 DATE COMPLETED: 11/20/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-11 ft.

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.	GEO- LOGICAL CONTACT
	0					
	1	GRAINSIZE		clayey SILT, mostly silt, few clay, few-little shell fragments, tr. f. sand, Black		
	2			clayey SILT, mostly silt, few-little clay, trace shell fragments, gray		
	3					
	4	GRAINSIZE				
	5					
	6					
	7	GRAINSIZE				
	8		End of Core @ 8.1			
	9					
	10					

LEGEND:

Penetration = 11 ft

Recovery = 8.1 ft

2nd of 2 attempts

NOTES:

Location: Pier 1, Southwest

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-12
 DATE START: 11/21/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 28 ft.
 DATE COMPLETED: 11/21/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-10 ft.

ELEV IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	USCS	GEO- LOGICAL CONTACT
	0			clayey SILT, mostly silt, tr-few clay, tr shell fragments, dark gray		
	1					
	2			clayey SILT, mostly silt, few-little clay, trace shell fragments, light-med. gray		
	3					
	4					
	5					
	6		End of Core @ 5.9			
	7					
	8					
	9					
	10					

LEGEND

Penetration = 10 ftRecovery = 5.9 ft

NOTES.

air pocket (~0.4') at base of core

Location: off-shore of "Dead Zone"

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-13
 DATE START: 11/20/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 31 (ft)
 DATE COMPLETED: 11/20/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-10 (ft)

ELEV IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	USCS	GEO- LOGICAL CONTACT
	0					
	1	GRAINSIZE		Shells beds, mostly shell fragments surrounded by Black Silt, tr. - few clay		
	2					
	3		PET ODOR + SH-SEW			
	3.4					
	4			clayey SILT, mostly silt, few clay, tr shell fragments No Pet. odor noted in this unit		
	5	GRAINSIZE				
	6		End of Core @ 5.9'			
	7					
	8					
	9					
	10					

LEGEND:

Penetration = 10 ftRecovery = 6.7 ft

NOTES.

Location: Pier 1, North Center

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derricktor Ship. DRILLED BY: TG&B CORE NO: V-14
 DATE START: _____ INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 34 ft
 DATE COMPLETED: _____ BEARING: N/A CHECKED BY: _____ CORE RUN: 0-12 ft

ELEV. IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.	GEO- LOGICAL CONTACT
	0			SILT, mostly silt, little - some shell fragments to clay, black		
	1					
	1.3					
	2			clayey SILT, mostly silt, few clay, to sand trace - few shell fragments		
	3					
	4					
	4.8					
	5			mottled pea size dark gray - black circular zones		
	6					
	7					
	8.1					
	8.55		End of Core @ 8.55			
	9					
	10					

LEGEND:

Penetration = 12 ftRecovery = 8.55 ft2nd Attempt of 2

NOTES.

smells of sulfur, no p10 detections

Location: pier 1, North west Corner

VIBRACORE LOG

BROWN AND ROOT ENVIRONMENTAL

PROJECT NO: 6884 LOCATION: Derecktor Ship. DRILLED BY: TG&B CORE NO: V-15
 DATE START: 11/21/95 INCLINATION: Vert. LOGGED BY: J Holden WATER DEPTH: 16
 DATE COMPLETED: 11/21/95 BEARING: N/A CHECKED BY: _____ CORE RUN: 0-6

ELEV IN FEET	DEPTH IN FEET	SAMPLE	REMARKS ON ADVANCE OF BORING	SOIL & ROCK DESCRIPTION	U.S.C.S.	GEO- LOGICAL CONTACT
	0		Shells on top	sandy SILT, mostly silt, little f sand, trace clay black		
	0.2			Silty SAND, mostly f sand, little silt, some shell fragments, gray - dk gray		
	0.65			Silty SAND, mostly f sand, few silt, trace shell fragments		
	1		1.5	} clay lenses (0.02 - 0.03' thick) 1 piece rotten wood		
			1.85			
			1.90			
	2					
	2.5			Silty SAND, similar to 0.65 - 2.5 unit above, trace CAS SAND		
	3			shell layer		
			End of Core @ 3.15'			
	4					

LEGEND

Penetration = 6 ft

Recovery = 3.15 ft

3rd attempt @ this Loc.

NOTES.

Large (0.5') air pocket in base of Core

Location: off-shore of Building 234